

GULFCO MARINE MAINTENANCE SITE RI/FS OVERSIGHT (TASK ORDER 0006-RICO-06JZ)

Sediment Biaccumulation Factors (BAFs)									
Chemical	Sediment Concentration (units)		Tissue Concentration (units)	BAF (unitless)	Species/Organism	Notes	Reference		
2-Methylnaphthalene	--	--	--	2.6	Oligochaetes	Laboratory	Brunson et al. (1998) (Table 2 on Page 199)		
	--	--	--	6.7		Field			
	Arithmetic Mean of BAFs		4.65	--		--			
Antimony	0.5	ug/g	< 0.3	ug/g	0.60	Yellow perch	Fillet concentration for location Snk-CJ	Clark and Maret, 1998 (Pages 31 and 33)	
	0.7		< 0.2		0.29	Smallmouth bass	Fillet concentration for location Snk-BR		
	0.5		< 0.2		0.40	Smallmouth bass	Fillet concentration for location Snk-CJ		
	2		< 0.2		0.10	Sculpin	Sediment concentration for location Bvtn		
	Geometric Mean of BAFs		0.29	--	--	--	--		
Arsenic	673	ug/g	0.051	mg/kg (wet weight)	0.00038	Longnose gar	Assumed 80% moisture USEPA, 2000 (Page 78)		
	673		0.025		0.00019	Northern pike			
	673		0.167		0.0012	Golden shiner			
	673		0.036		0.00027	Emerald shiner			
	673		0.03		0.00022	Spottail shiner			
	673		0.0513		0.00038	Bluntnose minnow			
	673		2.36		0.018	Creek chub			
	673		0.132		0.0010	White sucker			
	673		0.101		0.00075	Banded killifish			
	673		0.128		0.0010	Rock bass			
	673		0.342		0.0025	Pumpkinseed			
	673		0.083		0.00062	Largemouth bass			
	673		0.077		0.00057	Yellow perch			
	673		0.08		0.00059	Walleye			
	9.1	ug/g	1.39	mg/g (wet weight)	764	Fathead minnow			
	9.78		1.14		583				
	1.25		1.58		6,320				
	26		2.4		462				
	15		1.76		587				
	18		0.66		183				
	17		2.33		685				
	17		2.22		653				
	11		1.82		827				
	Geometric Mean of BAFs		0.16	--	--	--	--		
Beryllium	1	ug/g	< 0.3	ug/g	0.30	Yellow perch	Fillet concentration for location Snk-CJ	Clark and Maret, 1998 (Pages 31 and 33)	
	2		< 0.2		0.10	Smallmouth bass	Fillet concentration for location Snk-BR		
	1		< 0.2		0.20	Smallmouth bass	Fillet concentration for location Snk-CJ		
	1		< 0.2		0.20	Sculpin	Sediment concentration for Bvtn		
	Geometric Mean of BAFs		0.19	--	--	--	--		

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Chromium (total)	58	ug/g	0.6	ug/g	0.010	Yellow perch	Fillet concentration for location Snk-CJ	Clark and Maret, 1998 (Pages 31 and 33)	
	74		0.7		0.0095	Smallmouth bass	Fillet concentration for location Snk-BR		
	58		0.5		0.0086	Smallmouth bass	Fillet concentration for location Snk-CJ		
	76		1.9		0.025	Sculpin	Location Cedar		
	59		1.9		0.032	Sculpin	Location Dairy		
	69		1.9		0.028	Sculpin	Location FanDen		
	67		1.6		0.024	Sculpin	Location FanDen-r1		
	67		2.2		0.033	Sculpin	Location FanDen-r2		
	75		1.6		0.021	90% of which were reticulate sculpin; redside shiner and speckled dace were common; largescale sucker, cutthroat			
	75		1.7		0.023	Location Fan-92			
	76		1.6		0.021	Location Fan-93			
	68		1.5		0.022	Location Fan-93-r1			
	73		1.6		0.022	Location Fan-93-r2			
	74		2		0.027	Sculpin and redside shiner			
	74		2		0.027	Location UpFan			
	83		1.9		0.023	Sculpin, cutthroat trout, and rainbow trout			
	Geometric Mean of BAFs		0.021		--	--	--	--	
Lead	107	ug/g	10.5	mg/g (wet weight)	491	Fathead minnow	Assumed 80% moisture	USEPA, 2000 (Page 478)	
	365		5.7		78				
	138		0.8		29				
	241		0.9		19				
	375		20		267				
	508		13.6		134				
	297		11.9		200				
	377		19.5		259				
	283		15.1		267				
	286		9.3		163				
	Arithmetic Mean of BAFs		191		--				
	Arithmetic Mean of BAFs		1.96		<i>Pseudocrenilabrus philander</i>	Based on 264 replicates		deWet et al., 1994 (Table 2 - page 121)	
	Weighted Mean of BAFs		8.8		--	--	--	--	
Silver	Arithmetic Mean of BAFs		1,100	Cyprinus carpio		Based on microcosm study exposure to ¹¹⁰ Ag ₂ CN	Ratte, 1999 (Table 3 - Page 93)		

Notes:

Concentrations based on whole body concentrations and dry weight unless noted.

The full reporting limit was used for tissue concentrations where analytes were otherwise not detected.

BAF = Bioaccumulation factor

mg/g = Milligram per gram

mg/kg = Milligram per kilogram

ug/g = Microgram per gram

References:

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deWet, L.M., H.J. Schoonbee, L.P.D deWet, and A.J.B Wiid. 1994. Bioaccumulation of metals by the southern mouthbrooder, *Pseudocrenilabrus philander* (Weber, 1897) from a mine-polluted impoundment. *Water SA* 20(2):119-126.

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